

## Eurecat, innovation with an impact

M.Carme Margelí Vila  
International Development  
Eurecat

14/07/21

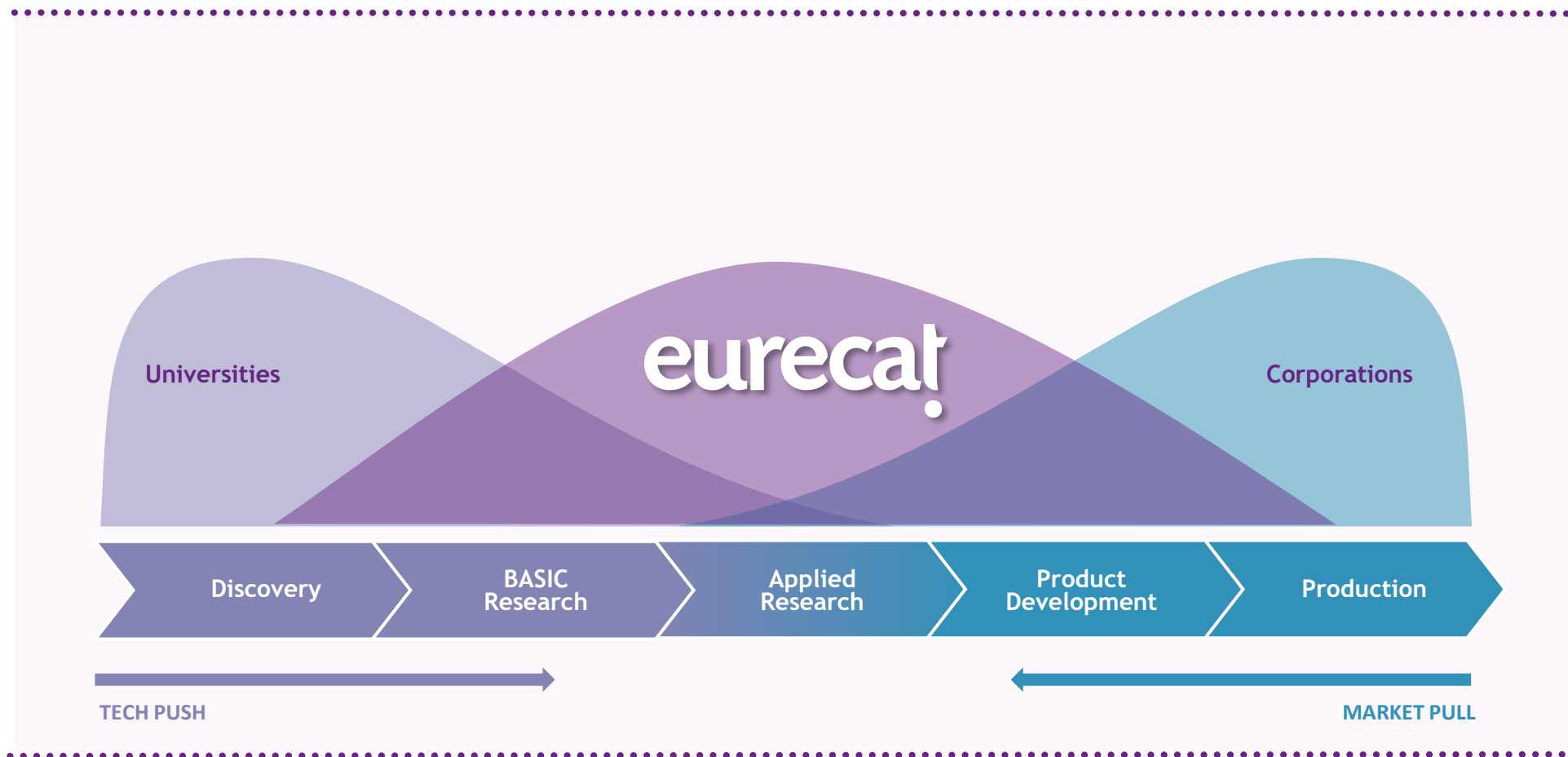


We promote **business competitiveness** and the wellbeing of society **through applied research and innovation.**



Eurecat, innovation with an impact

eurecat!





# Eurecat: Facts and figures

**50%**

of Eurecat's  
Activity is with

**SMEs**

**eurecat!**  
Centre Tecnològic de Catalunya

**+ 60**

EU projects participation

**+ 15**

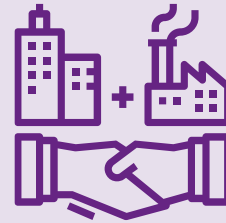
EU projects coordinated

**+ 200**

Large R&D consortia



**50<sub>M</sub>** Turnover  
2020



**1.600** Customers



**650** Professionals



**22%** PhD



# Eurecat: a committed team, aligned with our companies

We have a results-oriented team committed to all our projects to offer companies excellent service.



**+650**  
professionals



**21%**  
PhD

**58%**  
men



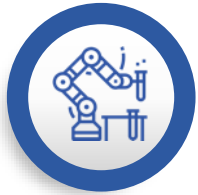
**42%**  
women

Data corresponding to the end of 2019





# Integration of multiple technologies



## Industry

1. Advanced materials (metallics, composites, polymers) and new manufacturing processes
2. Functional printing and embedded devices
3. Interactive and autonomous robotics
4. Functional textiles
5. Chemical Technology
6. Innovation and product development



## Digital

1. Sensor systems and IoT
2. Artificial intelligence
3. Big Data & Data Science
4. E-Health
5. Cybersecurity
6. Multimedia technologies



## Biotechnology

1. Nutrition and health
2. Omic sciences



## Sustainability

1. Water
2. Air
3. Soil
4. Waste
5. Energy
6. Batteries
7. Environmental impact

# eurecat

## Our differential value:

Our multi-technological  
capacities allow us to face  
complex challenges.



# Specialized in science and technology

eurecat

We are specialized in seven big areas to provide a comprehensive response to the main social, economic and environmental challenges.



Water  
technology



Medical  
devices



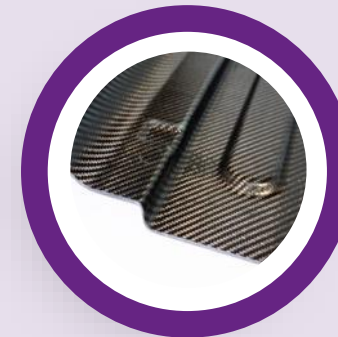
Personalized  
nutrition



Functional  
polymers



Artificial intelligence  
in industrial settings



Lightweight  
materials



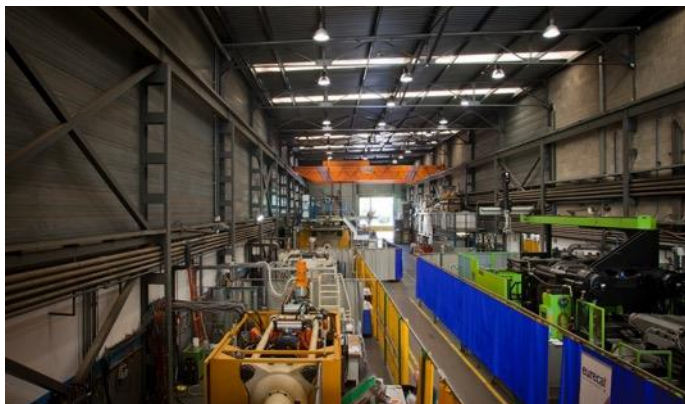
Advanced  
robotics



# Leading infrastructures

Eurecat has a complete set of laboratories, pilot plants and simulation tools to carry out projects and services with total professionalism and security.

**eurecat**



## Plastic transformation pilot plant

It is southern Europe's largest pilot plant for new technologies in plastic transformation.

Technical experience and capacity focused on trials, manufacturing and industrialization, with the most innovative plastic transformation technologies (over-injection, printing, etc.).



## Omic sciences centre

Unique scientific and technical infrastructure (ICTS) owned by the Rovira i Virgili University. The centre is managed by Eurecat and equipped with the latest technologies in metabolomics and provides integrated solutions with support units in proteomics, genomics, transcriptomics and advanced imaging.



## Battery and electric vehicle laboratory

Centre of reference in southern Europe for applied research, trials and the development of battery packs.

**We offer companies our state-of-the-art equipment and laboratories.**



## Perception and cognition laboratories

Biometric equipment and behavioural measurements to objectively understand human information processing on the level of perception, cognition and emotional in real-time. User experience modelling.



## 3D audio laboratory

3D audio laboratory totally equipped with the latest technology.

Eurecat created Sfëar, a production and postproduction technology for audiovisual content with immersive sound.

We are recognized as a **KET Technology Centre by the European Commission** thanks to our close collaboration with SMEs on their market-oriented research and innovation activities. We bring the most cutting-edge technologies closer to the productive fabric in a bid to initiate the move towards a **more efficient and sustainable productive model**.

## + 35 laboratories in:

- Industrial and collaborative robotics
- Additive manufacturing
- Technical assistance for moulds and material processes
- Surface treatment for functional printing
- Textile technology and high-performance fabrics.
- IoT Cybersecurity Lab, etc.

## + Data Science Clusters

# HIGHLIGHT PROJECTS

**ATM** Àrea de Barcelona  
Autoritat del Transport  
Metropolità

## Multimodal Mobility Analysis

eurecat

### OBJECTIVE:

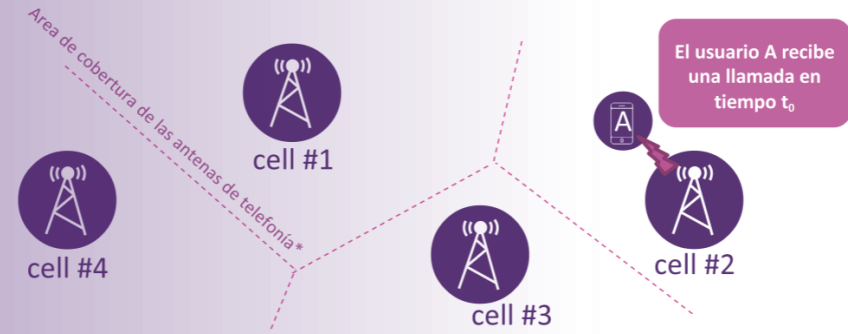
Provide the Barcelona Metropolitan Transport Authority (ATM) with origin-destination matrices in the province of Barcelona from the mobile phone data of public transport users and be able to identify different modes of transport.

### DATA:

- CDR (Call Data Records: calls, SMS, conexiones de datos,...)
- Mobile Antena network: position, range, ..)

### RESULTS:

Using BigData tools, an algorithm has been developed capable of identifying the significant journeys of users, and consequently obtaining the origin-destination matrices according to the modes of transport and according to the time slot. Through this technique it is possible to study aggregate mobility patterns in large territories



user_id	timestamp	action_type	cell_id	...
A	$t_0$	inbound_call	2	...

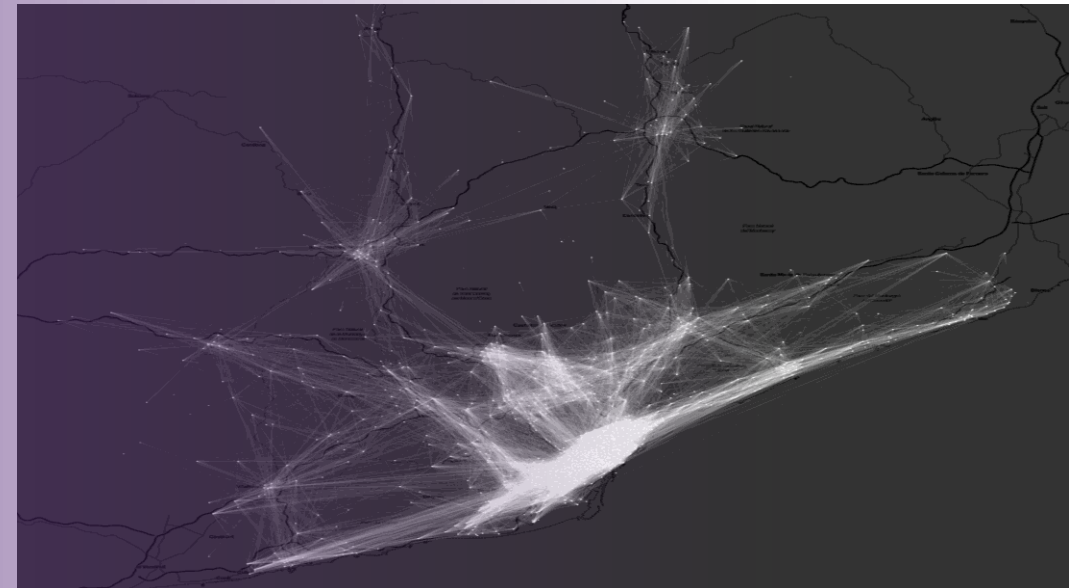
Datos CDRs

user_id	age	gender	rate	address
A	30	M	MyRate™	Rambla, BCN

Datos usuarios

cell_id	type	latitude	longitude	...
2	micro	40.9220	1.7612	...

Datos antenas





# HIGHLIGHT PROJECTS



## The AI Digital Innovation in Catalonia

The CIDAI is a public-private initiative that promotes the transfer of knowledge and the implementation of joint projects between knowledge-generating entities (universities, research and innovation centers), technology and service providers, and user companies and institutions demanding innovative solutions in applied artificial intelligence.

The CIDAI aims to accelerate the adoption of reliable Artificial Intelligence in the business world and in society, as well as enhance the Catalan Artificial Intelligence ecosystem as an international reference pole by creating a connected, active and dynamic community that involves the majority of the agents.

Coordinated by Eurecat, it is a key piece in the Catalonia AI strategy promoted by the Government of Catalonia.

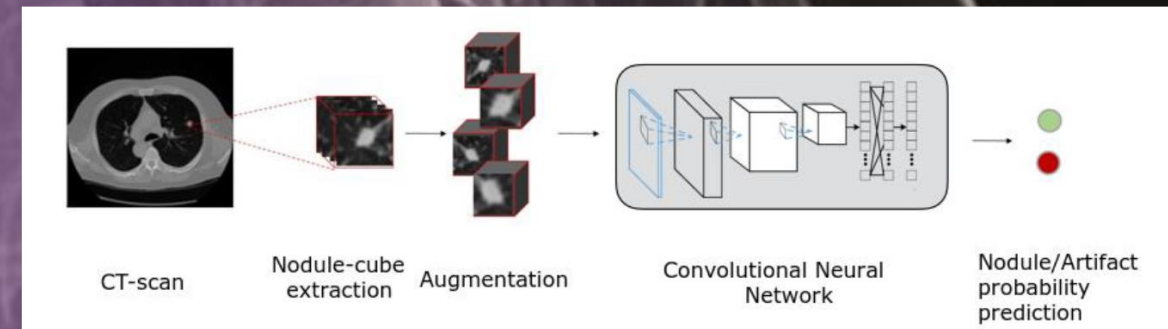
[www.cidai.eu](http://www.cidai.eu)



## CAD Lung cancer

Computer Aided Diagnostic (CAD) tools may help to automatically detect lung tumours in thorax radiologic images which in clinical practice are only informed by specialist physicians in around 25% of the total cases.

The application of Deep Belief Networks to 1.000 images resulted in the capability to automatically identify lung tumors beyond the ones found by the care system in a proportion over 1%.



# HIGHLIGHT PROJECTS

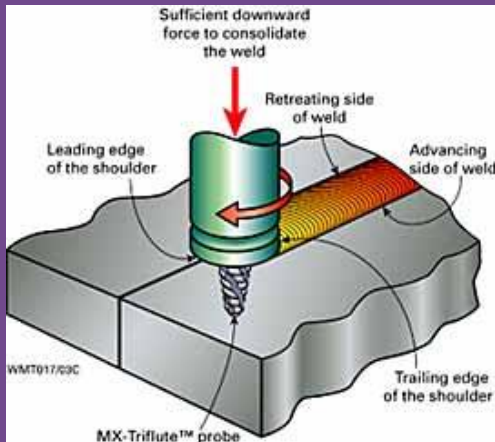


Predictive  
Maintenance in  
Aerospace

**SESAME: Smart European Space Access through Modern Exploitation of data science.** Demonstrate the ability of European space companies to work together and reduce costs using data science for predictive quality, predictive maintenance and supply chain agility

## USE CASE:

Friction Stir Welding (FSW) predictive quality & maintenance for the launcher assembly



## MAIN TECHNOLOGIES

- *Analítica de datos*
- *Data fusion & feature engineering*
- *AI & ML for predictive quality*
- *Data processing and pattern recognition*

eurecat





# HIGHLIGHT PROJECTS



Advanced  
manufacturing

eurecat

Sharework provides the intelligence, methods and tools required for the effective adoption of human-robot collaboration (HRC) in manufacturing processes lacking automation.

The project is developing a robotic system capable of understanding the environment and predicting human behaviour thanks to artificial intelligence and process data.

The technology will have the capacity to create a robot that can work in an environment that guarantees human safety.

[www.sharework-project.eu](http://www.sharework-project.eu)



European  
Commission

Horizon 2020  
European Union funding  
for Research & Innovation



# HIGHLIGHT PROJECTS



Coronavirus  
SARS-CoV-2

eurecat

## PROCEED

Prediction and support system for the comprehensive management of the evolution and use of resources in pandemics situations.

The **PROCEED** project aims to create an **augmented epidemiological model** to support decision-making through the collection, integration, and analysis of heterogeneous data sources (health, mobility, environment, wastewater and social).

Within the framework of the project, a **new system for predicting and supporting the comprehensive management of pandemics** is developed and deployed, defined as a personalised infrastructure and offering tools that allow managers, clinical professionals and patients to access data, results, indicators, predictions and recommendation throughout the various stages of the epidemic cycle.

## HIGHLIGHT PROJECTS



Circular  
Economy

**NEXTGEN - Transformational circular economy solutions and systems around resource use in the water sector. NextGen project challenges embedded thinking and practices by bringing financially sustainable innovations to life.**

To achieve this, NextGen will deliver technological, business and governance solutions for water in ten high profile demonstration cases across Europe and three associate partners worldwide.

NextGen project aims at accelerating, transfer and upscale circular economy practices worldwide by sharing our collective experiences and insights in citizen and stakeholder engagement, business models and services. A market place and targeted development of spin off activities will commercialise effective solutions.

The project comprises a strong partnership of water companies, industry, specialised SMEs, applied research institutes, technology platforms, city and regional authorities. For each of them, NextGen builds on an impressive portfolio of research and innovation projects and leverages multiple European and global networks to deliver real impact. It is lead and coordinated by Dutch water cycle research institute, [KWR](#). Eurecat is coordinating the technical work package of the project aiming at demonstrating the feasibility of innovative technological solution.



## STEP UP Designing deep renovation for the decarbonisation of the EU building stock

StepUP is addressed to achieve the challenge of the decarbonisation process in the European buildings stock by 2050. A goal that, according to the Energy Performance of Buildings Directive (EPBD), will be effective if the market achieves a deep renovation energy, a key action to reduce drastically buildings' energy demand.

# HIGHLIGHT PROJECTS



## Batteries

Design, manufacturing and validation of the next generation of battery packs for the automotive mass-market.

The MARBEL project develops an innovative and competitive lightweight battery with increased energy density and shorter recharging times with the objective to accelerate the mass market take-up of electric vehicles.

The project innovation is based on the following main pillars:

- Advanced battery packaging using a Design for Assembly (DfA) and Disassembly (DfD) methodology.
- Lightweight and sustainable Battery Packaging.
- Solutions and processes for the sustainable dismantling and 2nd life
- Flexible advanced battery management systems.
- Ultra-Fast Charging strategies and enhanced thermal management
- Procedures for characterisation and validation of future performance and safety

## Success stories with companies

We bring innovation to companies of all sizes, sectors and regions through multidisciplinary and multi-technology solutions aimed at boosting their competitiveness.

eurecat



### Technological innovation to advance the company's digitalization

"We work with Eurecat to access knowledge and resources we do not have in our company. Professionally speaking, they treated us exquisitely, with great proximity. It was very easy for our company to build a trustworthy relationship with Eurecat."

[see video](#)



NISSAN

### Making production centres more productive

"Our collaboration with Eurecat came about because it has both industrial and digital technological competences that are very closely aligned with our strategic transformation plans for our production centres."

[see video](#)



### Products that improve the quality of people's lives through better mobility.

"Working with Eurecat and developing a project of this kind required an effort in innovation, improvement, the search for new elements and teamwork to overcome the challenge."

[see video](#)





# International Cooperation



## **Objective 1**

To facilitate companies  
the access to  
international markets  
with technology



## **Objective 2**

To promote research  
and innovation  
partnerships around  
the world



## **Objective 3**

To commercialise our  
portfolio of  
technologies and  
services

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY

**International cooperation**

**eurecat**

Barcelona Corporate Headquarters

Santiago de Chile LATAM Headquarters

Tecniospring INDUSTRY

RMIT UNIVERSITY



# Cooperation Eurecat-South Korea

- Cooperation South Korea-Spain
  - Bilateral Program KSEI (Korea & Spain Energy Innovation Program)
  - Agreement between CDTI (Centre for the Development of Industrial Technology and the Korea Institute for Advancement of Technology (KIAT) and the Korea Institute of Energy Technology Evaluation and Planning (KETEP)
  - Agreement between the National Research Council of Science and Technology and ACCIO (Catalan Government's agency for business competitiveness)





# Cooperation Eurecat-South Korea

eurecat

## PathoCERT - Pathogen Contamination Emergency Response Technologies

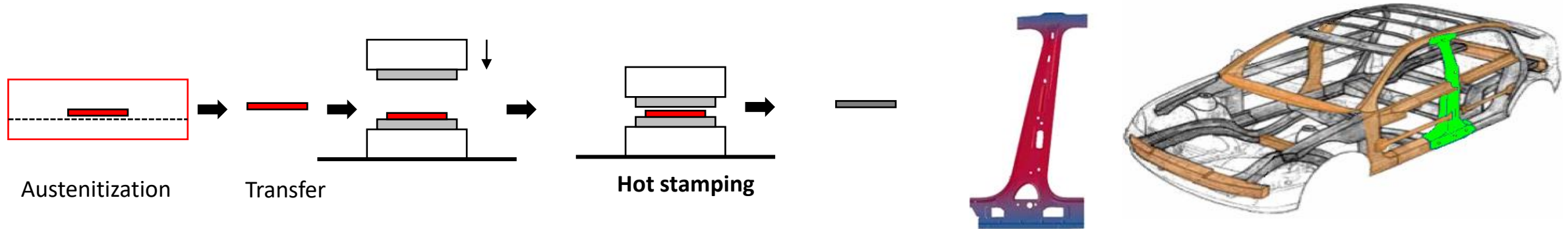
The PathoCERT project researches and demonstrates a collection of novel, cost-effective and easy-to-use pathogen contamination emergency response technologies, tools and guidelines, which will be field validated by the first responders. PathoCERT has the objective to strengthen the coordination and response capability of first responders in handling waterborne pathogen contamination events and other potential and harmful illness spread out through water.





## Cosmetic corrosion study of hot stamped components for automotive components

**Hot stamping** is commonly used in Automotive to manufacture high strength parts with safety requirements



The project addressed the following topics:

- Effect of Surface damage in a cosmetic corrosion resistance
- Effect of Al-Si coating color in a cosmetic corrosion resistance
- Study of the effect of welding on corrosion





# Cooperation Eurecat-South Korea



- Accelerating the impact of innovation Spain-South Korea in the field of Artificial Intelligence. Seminar organised by CDTI and IITP
- Mobile World Congress 2021 - Korea Pavilion organised by KOTRA (Korea Trade-Investment Promotion Agency)



## Acelerando el Impacto de la Innovación: España-Corea en Inteligencia Artificial

Fecha: 18 de junio, a las 9 h de España.

Organiza:



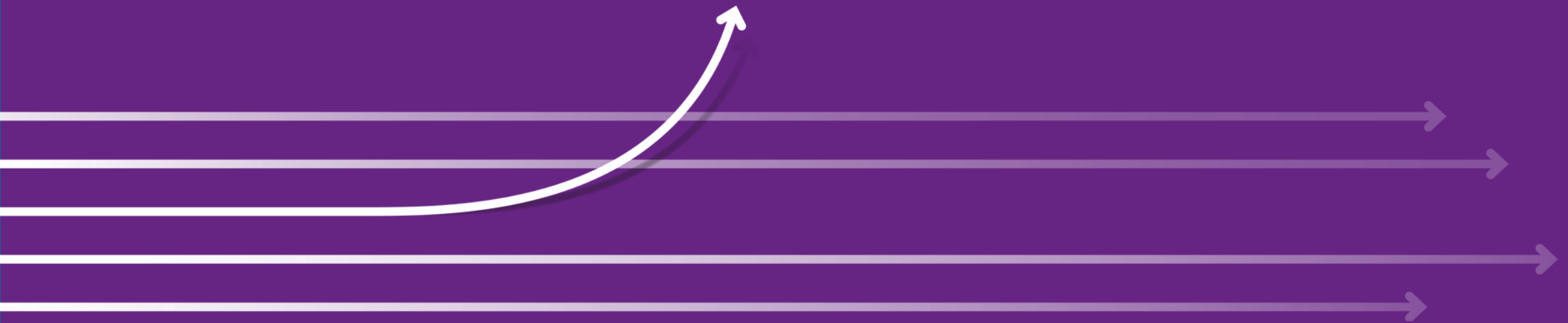
Colaboradores:



- Objectives of the cooperation:
  - Promote the collaboration with Korean technological centres and universities:
    - Development of R&D and Innovation Projects
    - Scientific exchange visits
    - Organization of scientific and technological seminars
    - Collaboration in joint education programmes
    - Potential use of laboratory facilities for specific projects
  - Promote the collaboration between Catalan and Korean companies.
  - Beginning 2022 Eurecat mission to South Korea to better know the innovation ecosystem



# Thank you!



**eurecat!**

[www.eurecat.org](http://www.eurecat.org)  
[info@eurecat.org](mailto:info@eurecat.org)



*"innovating for business"*

M.Carmen Margelí  
Head of International Development  
[carme.margeli@eurecat.org](mailto:carme.margeli@eurecat.org)  
Phone: +34 649 40 19 42